

A new *Celtis* from the western Miocene

EDWARD W. BERRY

During the study of Miocene plants from Washington and Idaho I happened upon a small collection of beautifully preserved Miocene plants which were presented to the U. S. National Museum (Accession 66310. U. S. Geological Survey Locality 7475) in 1921 by Mr. Sam Ballantyne, and coming from the Ballantyne ranch in Section 27, Township 23 south, Range 45 east, Willamette meridian, Malheur County, Oregon.

The matrix is a fine grained lithified tuff with ferruginized bedding surfaces on which the impressions occur. Eleven species of plants are represented, as well as the incomplete skeleton of the small fish—*Leuciscus*—whose scales, spines and bones are widely distributed in Washington, Idaho and Nevada in the Latah and Esmeralda formations.

The plants are the following:

- Acer chaneyi* Knowlton
- Amelanchier typica* Lesquereux
- Castanea orientalis* Chaney
- Celtis*, n. sp.
- Odostemon simplex* (Newberry) Cockerell
- Pinus* sp., Knowlton (3 needle fascicles)
- Platanus dissecta* Lesquereux
- Quercus idahoensis* Knowlton
- Quercus simulata* Knowlton
- Quercus treleasii* Berry
- Typha lesquereuxi* Cockerell

The most abundant forms are *Platanus dissecta* and *Quercus simulata*. All of the eleven except the new species of *Celtis*, which it is the purpose of this note to describe, are found at numerous other Miocene outcrops in Oregon or surrounding states. Two occur at Florissant, Colorado; two in the Esmeralda formation of Nevada, one in the Eagle Creek formation; three in the Bridge Creek beds; one in the Mascall beds, three in the Payette formation of Idaho; and seven of the 11 species in the Latah formation of Washington.

The available evidence indicates that the age is definitely younger than the Bridge Creek horizon which Chaney has found to be so extensively developed in Oregon, northeastern California and northwestern Nevada. I regard it as late Miocene.

The new species of *Celtis* may be described as follows:

Celtis hesperius Berry, n. sp. (Figure 1) Leaf cordate-ovate in form, with an extended acuminate tip and a cordate nearly equilateral base. Leaf substance thin. Margins entire at base, above with prominent aquiline-serrate teeth, somewhat variable in size and irregularly spaced, becoming reduced in size and finally disappearing distad. Length about 11 centimeters. Maximum width about 6 centimeters. Petiole stout, expanded, 1.75 centimeters long. Midvein stout, prominent, curved. Lateral primaries diverging from the extreme base at wide angles — 90° on one side, curving upward and camptodrome, stout and prominent. Secondaries stout, prominent, 8 or 9 pairs, straighter on one side and more ascending and curved on the other. The lateral primaries give off four or five camptodrome secondaries on

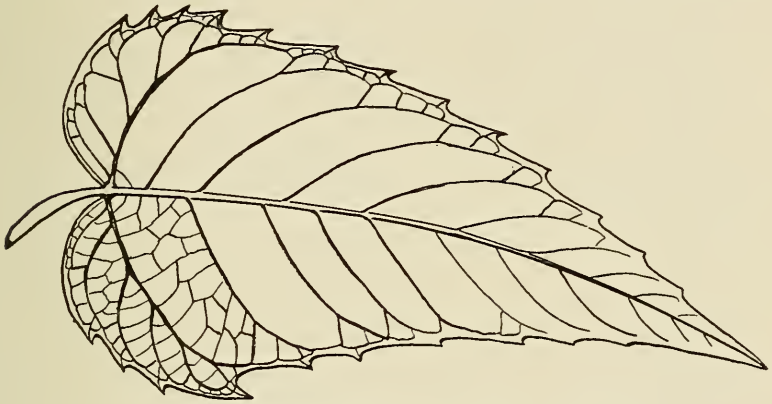


Fig. 1. *Celtis hesperius*, Berry (four-fifths natural size)

the outside. Tertiaries mostly inosculating internally to form a coarse isodiametric mesh; externally they extend into the marginal teeth.

The character of the base and the enlargement of a marginal tooth on one side give a somewhat deltoid form to this fine leaf. It is a highly characteristic form, markedly distinct from previously described species, both fossil and recent. This is emphasized by its cordate, subequilateral base and its less ascending lateral primaries. In form it is not unlike various fossil and recent species of *Betula* but differs from any of the *Betulaceae*—*Fagus*, *Ulmus*, *Carpinus*, *Planera*, *Ostrya*, etc., in having camptodrome instead of craspedodrome venation.

Three species of *Celtis* leaves have been described from our western Miocene. These are *Celtis mccoshii* Lesquereux¹ from

¹ Lesquereux, Leo, The Cretaceous and Tertiary floras: U. S. Geol. Survey Terr. Rept., vol. 8, p. 163, pl. 38, figs. 7, 8, 1883.

Florissant, which is smaller, with more closely spaced teeth, longer petiole, more ascending primaries, and ovate form; *Celtis besseyi* Barbour² from supposed Miocene beds in Nebraska; and *Celtis obliquifolia* Chaney³ from the Bridge Creek beds of the Crooked River basin in Oregon. The last is smaller, only subcordate, less produced distad, with more ascending primaries and the margins entire or sparingly toothed.

The present fossil species is not very different from the existing *Celtis occidentalis* Linné which is found in southeastern North America and in southern Idaho, eastern Washington and Oregon, and the Puget region of Washington. Its range suggests a formerly more continuous distribution which has become partially segregated by post-Tertiary dessication in parts of its former area of distribution.

THE JOHNS HOPKINS UNIVERSITY
BALTIMORE, MD.

² Barbour, E. H., Hackberry conglomerate, a new Nebraska rock: Nebraska State Bull. 8, vol. 1, p. 88, figs. 47, 48, 50, 51, 1925.

³ Chaney, R. W., Notes on two fossil hackberries from the Tertiary of the western United States: Carnegie Inst. Washington, Pub. No. 349, p. 52, pl. 1, figs. 1, 3, 5, 1925.